SUMMARY REPORT
46 BIRCH ROAD (FORMERLY 269 BIRCH ROAD)
LAUREL BAY MILITARY HOUSING AREA
MARINE CORPS AIR STATION BEAUFORT
BEAUFORT, SC

Revision: 0 Prepared for:

Department of the Navy
Naval Facilities Engineering Command, Mid-Atlantic
9324 Virginia Avenue
Norfolk, Virginia 23511-3095

and



Naval Facilities Engineering Command Atlantic 9324 Virginia Avenue Norfolk, Virginia 23511-3095 SUMMARY REPORT
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Prepared by:



CDM - AECOM Multimedia Joint Venture 10560 Arrowhead Drive, Suite 500 Fairfax, Virginia 22030

Contract Number: N62470-14-D-9016

CTO WE52

JUNE 2021



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List of Acronyms

bgs below ground surface

BTEX benzene, toluene, ethylbenzene, and xylenes

CTO Contract Task Order

COPC constituents of potential concern

ft feet

IDIQ Indefinite Delivery, Indefinite Quantity

IGWA Initial Groundwater Assessment

JV Joint Venture

LBMH Laurel Bay Military Housing MCAS Marine Corps Air Station

NAVFAC Mid-Lant Naval Facilities Engineering Command Mid-Atlantic

NFA No Further Action

PAH polynuclear aromatic hydrocarbon QAPP Quality Assurance Program Plan

RBSL risk-based screening level

SCDHEC South Carolina Department of Health and Environmental Control

Site LBMH area at MCAS Beaufort, South Carolina

UST underground storage tank
VISL vapor intrusion screening level



1.0 INTRODUCTION

The CDM - AECOM Multimedia Joint Venture (JV) was contracted by the Naval Facilities Engineering Command, Mid-Atlantic (NAVFAC Mid-Lant) to provide reporting services for the heating oil underground storage tanks (USTs) located in Laurel Bay Military Housing (LBMH) area at the Marine Corps Air Station (MCAS) Beaufort, South Carolina (Site). This work has been awarded under Contract Task Order (CTO) WE52 of the Indefinite Delivery, Indefinite Quantity (IDIQ) Multimedia Environmental Compliance Contract (Contract No. N62470-14-D-9016).

As of January 2014, the LBMH addresses were re-numbered to comply with the E-911 emergency response addressing system; however, in order to remain consistent with historical sampling and reporting for LBMH area, the residences will continue to be referenced with their original address numbers in sample nomenclature and reporting documents.

This report summarizes the results the environmental investigation activities associated with the storage of home heating oil and the potential release of petroleum constituents at the referenced property. Based on the results of the investigation, a No Further Action (NFA) determination has been made by the South Carolina Department of Health and Environmental Control (SCDHEC) for 46 Birch Road (Formerly 269 Birch Road). This NFA determination indicates that there are no unacceptable risks to human health or the environment for the petroleum constituents associated with the home heating oil USTs. The following information is included in this report:

- Background information;
- Sampling activities and results; and
- A determination of the property status.

1.1 Background Information

The LBMH area is located approximately 3.5 miles west of MCAS Beaufort. The area is approximately 970 acres in size and serves as an enlisted and officer family housing area. The area is configured with single family and duplex residential structures, and includes recreation, open space, and community facilities. The community includes approximately 1,300 housing units, including legacy Capehart style homes and newer duplex style homes. The housing area



is bordered on the west by salt marshes and the Broad River, and to the north, east and south by uplands. Forested areas lie along the northern and northeastern borders.

Capehart style homes within the LBMH area were formerly heated using heating oil stored in USTs at each residence. There were 1,100 Capehart style housing units in the LBMH area. The newer duplex homes within the LBMH area never utilized heating oil tanks. Heating oil has not been used at Laurel Bay since the mid-1980s. As was the accepted practice at the time, USTs were drained, filled with dirt, capped, and left in place when they were removed from service. Residential USTs are not regulated in the State of South Carolina (i.e., there are no federal or state laws governing installation, management, or removal).

In 2007, MCAS Beaufort began a voluntary program to remove the unregulated, residential USTs and conduct sampling activities to determine if, and to what extent, petroleum constituents may have impacted the surrounding environment. MCAS Beaufort coordinated with SCDHEC to develop removal procedures that were consistent with procedural requirements for regulated USTs. All tank removal activities and follow-on actions are conducted in coordination with SCDHEC. To date, all known USTs have been removed from all residential properties within the LBMH area.

1.2 UST Removal and Assessment Process

During the UST removal process, a soil sample was collected from beneath the UST excavations (approximately 4 to 6 feet [ft] below ground surface [bgs]) and analyzed for a predetermined list of constituents of potential concern (COPCs) associated with the petroleum compounds found in home heating oil. These COPCs, derived from the *Quality Assurance Program Plan (QAPP) for the Underground Storage Tank Management Division, Revision 3.1* (SCDHEC, 2016) and the *Underground Storage Tank Assessment Instructions for Permanent Closure and Change-In-Service,* (SCDHEC, 2018), are as follows:

- benzene, toluene, ethylbenzene, and xylenes (BTEX),
- naphthalene, and
- five select polynuclear aromatic hydrocarbon (PAHs): benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene and dibenz(a,h)anthracene.

Soil sample results were submitted by MCAS Beaufort to SCDHEC utilizing SCDHEC's UST Assessment Report form. In accordance with SCDHEC's *QAPP for the UST Management*



Division (SCDHEC, 2016), the soil screening levels consists of SCDHEC risk-based screening levels (RBSLs). It should be noted that the RBSLs for select PAHs were revised in Revision 2.0 of the QAPP (SCDHEC, 2013) and were revised again in Revision 3.0 (SCDHEC, 2015). The screening levels used for evaluation at each site were those levels that were in effect at the time of reporting and review by SCDHEC.

The results of the soil sampling at each former UST location were used to determine if a potential for groundwater contamination exists (i.e., soil results greater than RBSLs) and subsequently to select properties for follow-up initial groundwater assessment (IGWA) sampling. The results of the IGWA sampling (if necessary) are used to determine the presence or absence of the aforementioned COPCs in groundwater and identify whether former UST locations will require additional delineation of COPCs in groundwater. In order to delineate the extent of impact to groundwater, permanent wells are installed and a sampling program is established for those former UST locations where IGWA sampling has indicated the presence of COPCs in excess of the SCDHEC RBSLs for groundwater. Groundwater analytical results are also compared to the site specific groundwater vapor intrusion screening levels (VISLs) to evaluate the potential for vapor intrusion and the necessity for an investigation associated with this media. A multi-media investigation selection process tree, applicable to the LBMH UST investigations, is presented as Appendix A.

2.0 SAMPLING ACTIVITIES AND RESULTS

The following section presents the sampling activities and associated results for 46 Birch Road (Formerly 269 Birch Road). Details regarding the soil investigation at this site are provided in the *SCDHEC UST Assessment Report – 269 Birch Road* (MCAS Beaufort, 2009). The UST Assessment Report is provided in Appendix B. Details regarding the IGWA sampling activities at this site are provided in the *Initial Groundwater Investigation Report – July 2013* (Resolution Consultants, 2015). The laboratory report that includes the pertinent IGWA analytical results for this site is presented in Appendix C.

2.1 UST Removal and Soil Sampling

On March 30, 2009, a single 280 gallon heating oil UST was removed from the front landscaped bed area adjacent to the driveway at 46 Birch Road (Formerly 269 Birch Road). The former UST location is indicated on Figures 2 and 3 of the UST Assessment Report (Appendix B). The UST was removed, cleaned, and shipped offsite for recycling. There was no visual evidence (i.e.,





staining or sheen) of petroleum impact at the time of the UST removal. According to the UST Assessment Report (Appendix B), the depth to the base of the UST was 6'0" bgs and a single soil sample was collected from that depth. The sample was collected from the fill port side of the former UST to represent a worst case scenario.

Following UST removal, a soil sample was collected from the base of the excavation and shipped to an offsite laboratory for analysis of the petroleum COPCs. Sampling was performed in accordance with applicable South Carolina regulation R.61-92, Part 280 (SCDHEC, 2017) and assessment guidelines.

2.2 Soil Analytical Results

A summary of the laboratory analytical results and SCDHEC RBSLs is presented in Table 1. A copy of the laboratory analytical data report is included in the UST Assessment Report presented in Appendix B. The laboratory analytical data report includes the soil results for the additional PAHs that were analyzed, but do not have associated RBSLs.

The soil sample results were submitted by MCAS Beaufort to SCDHEC utilizing SCDHEC's UST Assessment Report form (Appendix B). The results of the soil sampling at the former UST location were used by MCAS Beaufort, in consultation with SCDHEC, to determine a path forward (i.e., additional sampling or NFA) for the property. The soil results collected from 46 Birch Road (Formerly 269 Birch Road) were greater than the SCDHEC RBSLs, which indicated further investigation was required. In a letter dated July 22, 2009, SCDHEC requested an IGWA for 46 Birch Road (Formerly 269 Birch Road) to determine if the groundwater was impacted by petroleum COPCs. SCDHEC's request letter is provided in Appendix D.

2.3 Groundwater Sampling

On July 17, 2013, a temporary monitoring well was installed at 46 Birch Road (Formerly 269 Birch Road), in accordance with the South Carolina Well Standards and Regulations (R.61-71.H-I, updated June 24, 2016). In order to provide data that can be used to determine whether COPCs are migrating to underlying groundwater, the monitoring well was placed in the same general location as the former heating oil UST. The former UST location is indicated on Figures 2 and 3 of the UST Assessment Report (Appendix B). Further details are provided in the *Initial Groundwater Investigation Report – July 2013* (Resolution Consultants, 2015).



The sampling strategy for this phase of the investigation required a one-time sampling event of the temporarily installed monitoring well. Following well installation and development, groundwater samples were collected using low-flow methods and shipped to an offsite laboratory for analysis of the petroleum COPCs. Upon completion of groundwater sampling, the temporary well was abandoned in accordance with the South Carolina Well Standards and Regulations R.61-71 (SCDHEC, 2016). Field forms are provided in the *Initial Groundwater Investigation Report – July 2013* (Resolution Consultants, 2015).

2.4 Groundwater Analytical Results

A summary of the laboratory analytical results and SCDHEC RBSLs is presented in Table 2. A copy of the laboratory analytical data report is included in Appendix C.

The groundwater results collected from 46 Birch Road (Formerly 269 Birch Road) were less than the SCDHEC RBSLs and the site specific groundwater VISLs (Table 2), which indicated that the groundwater was not impacted by COPCs associated with the former UST at concentrations that present a potential risk to human health and the environment.

3.0 PROPERTY STATUS

Based on the analytical results for groundwater, SCDHEC made the determination that NFA was required for 46 Birch Road (Formerly 269 Birch Road). This NFA determination was obtained in a letter dated August 6, 2015. SCDHEC's NFA letter is provided in Appendix D.

4.0 REFERENCES

Marine Corps Air Station Beaufort, 2009. South Carolina Department of Health and Environmental Control (SCDHEC) Underground Storage Tank Assessment Report – 269

Birch Road, Laurel Bay Military Housing Area, June 2009.

Resolution Consultants, 2015. *Initial Groundwater Investigation Report – July 2013 for Laurel Bay Military Housing Area, Multiple Properties, Laurel Bay Military Housing Area, Marine Corps Air Station Beaufort, Beaufort, South Carolina*, June 2015.

South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management, 2013. *Quality Assurance Program Plan for the Underground Storage Tank Management* Division, *Revision 2.0*, April 2013.





- South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management, 2015. *Quality Assurance Program Plan for the Underground Storage Tank Management* Division, *Revision 3.0*, May 2015.
- South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management, 2016. *Quality Assurance Program Plan for the Underground Storage Tank Management* Division, *Revision 3.1*, February 2016.
- South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management, 2017. *R.61-92, Part 280, Underground Storage Tank Control Regulations*, March 2017.
- South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management, 2018. *Underground Storage Tank Assessment Instructions for Permanent Closure and Change-In-Service*, March 2018.
- South Carolina Department of Health and Environmental Control Bureau of Water, 2016. *R.61-71, Well Standards*, June 2016.

Tables



Table 1 Laboratory Analytical Results - Soil 46 Birch Road (Formerly 269 Birch Road) Laurel Bay Military Housing Area Marine Corps Air Station Beaufort Beaufort, South Carolina

Constituent	SCDHEC RBSLs (1)	Results Sample Collected 03/30/09
Volatile Organic Compounds Analyz	ed by EPA Method 8260B (mg/kg)	
Benzene	0.003	ND
Ethylbenzene	1.15	0.0344
Naphthalene	0.036	0.702
Toluene	0.627	ND
Xylenes, Total	13.01	0.119
Semivolatile Organic Compounds Ar	alyzed by EPA Method 8270D (mg/kg)	
Benzo(a)anthracene	0.66	ND
Benzo(b)fluoranthene	0.66	ND
Benzo(k)fluoranthene	0.66	ND
Chrysene	0.66	ND
Dibenz(a,h)anthracene	0.66	ND

Notes:

Bold font indicates the analyte was detected.

Bold font and shading indicates the concentration exceeds the SCDHEC RBSL.

EPA - United States Environmental Protection Agency

mg/kg - milligrams per kilogram

ND - not detected at the reporting limit (or method detection limit if shown on the laboratory report). The soil laboratory report is provided in Appendix B.

RBSL - Risk-Based Screening Level

 ${\sf SCDHEC - South \ Carolina \ Department \ Of \ Health \ and \ Environmental \ Control}$

⁽¹⁾ South Carolina Risk-Based Screening Levels from the Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 1.0 and 1.1 (SCDHEC, May 2001 and SCDHEC, February 2011) and the Underground Storage Tank Assessment Guidelines (SCDHEC, February 2006).

Table 2 Laboratory Analytical Results - Groundwater 46 Birch Road (Formerly 269 Birch Road) Laurel Bay Military Housing Area Marine Corps Air Station Beaufort Beaufort, South Carolina

Constituent	SCDHEC RBSLs (1)	Site-Specific Groundwater VISLs (µg/L) ⁽²⁾	Results Sample Collected 07/18/13
Volatile Organic Compounds Analyzed	l by EPA Method 8260B (μg	/L)	
Benzene	5	16.24	ND
Ethylbenzene	700	45.95	ND
Naphthalene	25	29.33	2.5
Toluene	1000	105,445	ND
Xylenes, Total	10,000	2,133	ND
Semivolatile Organic Compounds Ana	lyzed by EPA Method 82700) (μg/L)	
Benzo(a)anthracene	10	NA	ND
Benzo(b)fluoranthene	10	NA	ND
Benzo(k)fluoranthene	10	NA	ND
Chrysene	10	NA	ND
Dibenz(a,h)anthracene	10	NA	ND

Notes:

Bold font indicates the analyte was detected.

Bold font and shading indicates the concentration exceeds the SCDHEC RBSL and/or the Site-Specific Groundwater VISL.

EPA - United States Environmental Protection Agency

JE - Johnson & Ettinger

NA - Not Applicable

ND - not detected at the reporting limit (or method detection limit if shown on the laboratory report). The groundwater laboratory report is provided in Appendix C.

RBSL - Risk-Based Screening Level

SCDHEC - South Carolina Department Of Health and Environmental Control

μg/L - micrograms per liter

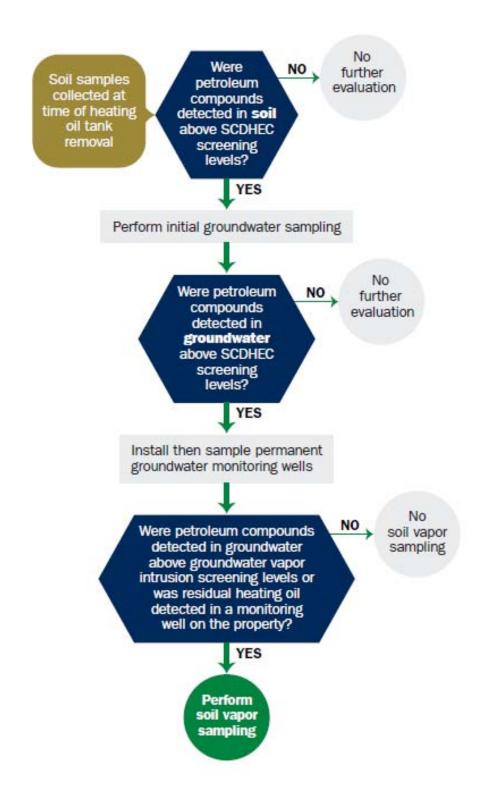
VISL - Vapor Intrusion Screening Level

⁽¹⁾ South Carolina Risk-Based Screening Levels from the Quality Assurance Program Plan for the Underground Storage Tank Management Division, Revision 3.1 (SCDHEC, February 2016).

⁽²⁾ Site-specific groundwater VISLs were calculated using the EPA JE Model Spreadsheets (Version 3.1, February 2004) and conservative modeling inputs representative of a small single-story house with an 8 foot ceiling. Site-specific groundwater VISLs were developed based on a target risk level of 1x10⁻⁶, a target hazard quotient of 1 (per target organ), and a default residential exposure scenario, assuming exposure for 24 hours/day, 350 days/year, for 26 years. Modeling was performed for a range of depths to groundwater for application as appropriate in different areas of the Laurel Bay Military Housing Area. The most conservative levels are presented for comparison. Refer to Appendix H of the Uniform Federal Policy Sampling Analysis and Sampling Plan for Vapor Media, Revision 4 (Resolution Consultants, April 2017) for additional information.

Appendix A Multi-Media Selection Process for LBMH



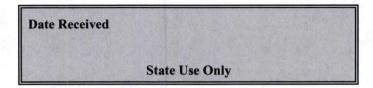


Appendix A - Multi-Media Selection Process for LBMH

Appendix B UST Assessment Report



South Carolina Department of Health and Environmental Control (SCDHEC) Underground Storage Tank (UST) Assessment Report



Submit Completed Form To: UST Program SCDHEC 2600 Bull Street Columbia, South Carolina 29201 Telephone (803) 896-7957

04227

JUN 2 9 2009

SITE ASSESSMENT, REMEDIATION & REVITALIZATION

I. OWNERSHIP OF UST (S)

MCAS Beaufort, Comm	nanding Officer Attn: NF	REAO (Craig Ehde)				
Owner Name (Corporation, Individual, Public Agency, Other) P.O. Box 55001						
Mailing Address Beaufort,	South Carolina	29904-5001				
City 843	State 228-7317	Zip Code Craig Ehde				
Area Code	Telephone Number	Contact Person				

II. SITE IDENTIFICATION AND LOCATION

Permit I.D. #			
	ry Housing Area, Marine	Corps Air Station,	Beaufort, SC
Facility Name or Company	Site Identifier		×
269 Birch Dr., La	urel Bay Military Housir	ng Area	
Street Address or State Roa	d (as applicable)	. 1	
Beaufort,	Beaufort		The second second
City	County		

Attachment 2

III. INSURANCE INFORMATION

Insurance Statement
The petroleum release reported to DHEC on at Permit ID Number may qualify to receive state monies to pay for appropriate site rehabilitation activities. Before participation is allowed in the State Clean-up fund, written confirmation of the existence or non-existence of an environmental insurance policy is required. This section must be completed.
Is there now, or has there ever been an insurance policy or other financial mechanism that covers this UST release? YES NO (check one)
If you answered YES to the above question, please complete the following information:
My policy provider is: The policy deductible is: The policy limit is:
If you have this type of insurance, please include a copy of the policy with this report.
IV. REQUEST FOR SUPERB FUNDING
I DO / DO NOT wish to participate in the SUPERB Program. (Circle one.)
V. CERTIFICATION (To be signed by the UST owner)
I certify that I have personally examined and am familiar with the information submitted in this and all attached documents; and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.
Name (Type or print.)
Signature
To be completed by Notary Public:
Sworn before me this day of, 20
(Name)
Notary Public for the state of Please affix State seal if you are commissioned outside South Carolina

VI. UST INFORMATION	269Birch				
Product(ex. Gas, Kerosene)	Heating oil				
Capacity(ex. 1k, 2k)	280 gal				
Age	Late 1950s				
Construction Material(ex. Steel, FRP)	Steel			-	
Month/Year of Last Use	Mid 1980s				
Depth (ft.) To Base of Tank	6'			_	<u> </u>
Spill Prevention Equipment Y/N	No	· - · · · · · · · · · · · · · · · · · · ·			
Overfill Prevention Equipment Y/N	No				
Method of Closure Removed/Filled	Removed				
Date Tanks Removed/Filled	3/30/09	<u> </u>			
Visible Corrosion or Pitting Y/N	Yes				
Visible Holes Y/N	Yes				
Method of disposal for any USTs removed from the Tank was removed from the ground, "A."					achm
Method of disposal for any liquid petroleum, sludge	s, or wastewaters re	emoved	from th	ne USTs (attacl
disposal manifests) Fluid was pumped from the tank an	d disposed of	by M	ICAS.		

VII. PIPING INFORMATION

	269Birch
	Steel
Construction Material(ex. Steel, FRP)	/Copper
Distance from UST to Dispenser	N/A
Number of Dispensers	N/A
Type of System Pressure or Suction	Suction
Was Piping Removed from the Ground? Y/N	No*
Visible Corrosion or Pitting Y/N	Yes
Visible Holes Y/N	No
Age	Early 1950s
	describe the location and extent for each piping run
	on the surface of the steel vent
*Both steel and copper piping wer	re capped at the edge of the excava
The USTs at the residences are c	
and formerly contained fuel oil	-
installed in the late 1950s and	last used in the mid 1980s.

IX. SITE CONDITIONS

	Yes	No	Unk
A. Were any petroleum-stained or contaminated soils found in the UST excavation, soil borings, trenches, or monitoring wells? If yes, indicate depth and location on the site map.		Х	
B. Were any petroleum odors detected in the excavation, soil borings, trenches, or monitoring wells? Mild odor came from excavation. If yes, indicate location on site map and describe the odor (strong, mild, etc.)	х		
C. Was water present in the UST excavation, soil borings, or trenches? If yes, how far below land surface (indicate location and depth)?		Х	
D. Did contaminated soils remain stockpiled on site after closure? If yes, indicate the stockpile location on the site map. Name of DHEC representative authorizing soil removal:		х	
E. Was a petroleum sheen or free product detected on any excavation or boring waters? If yes, indicate location and thickness.		Х	

X. SAMPLE INFORMATION

A. SCDHEC Lab Certification Number 96012001

B.

Sample #	Location	Sample Type (Soil/Water)	Soil Type (Sand/Clay)	Depth*	Date/Time of Collection	Collected by	OVA#
269Birch	Excav at fill end	Soil	Clay	6'	3/30/09 1335 hrs	P. Shaw	
					1333 1115		
8							
9							
10							
11							
12							
13							
14							
15	-						
16							
17							
18							
19							
20							

^{* =} Depth Below the Surrounding Land Surface

XI. SAMPLING METHODOLOGY

Provide a detailed description of the methods used to collect <u>and</u> store the samples. Also include the preservative used for each sample. Please use the space provided below.

Sampling was performed in accordance with SC DHEC R.61-92 Part 280
and SC DHEC Assessment Guidelines. Sample containers were prepared by the
testing laboratory. The grab method was utilized to fill the sample
containers leaving as little head space as possible and immediately
capped. Soil samples were extracted from area below tank. The
samples were marked, logged, and immediately placed in a sample cooler
packed with ice to maintain an approximate temperature of 4 degrees
Centigrade. Tools were thoroughly cleaned and decontaminated with
the seven step decon process after each use. The samples remained in
custody of SBG-EEG, Inc. until they were transferred to Test America
Incorporated for analysis as documented in the Chain of Custody Record.

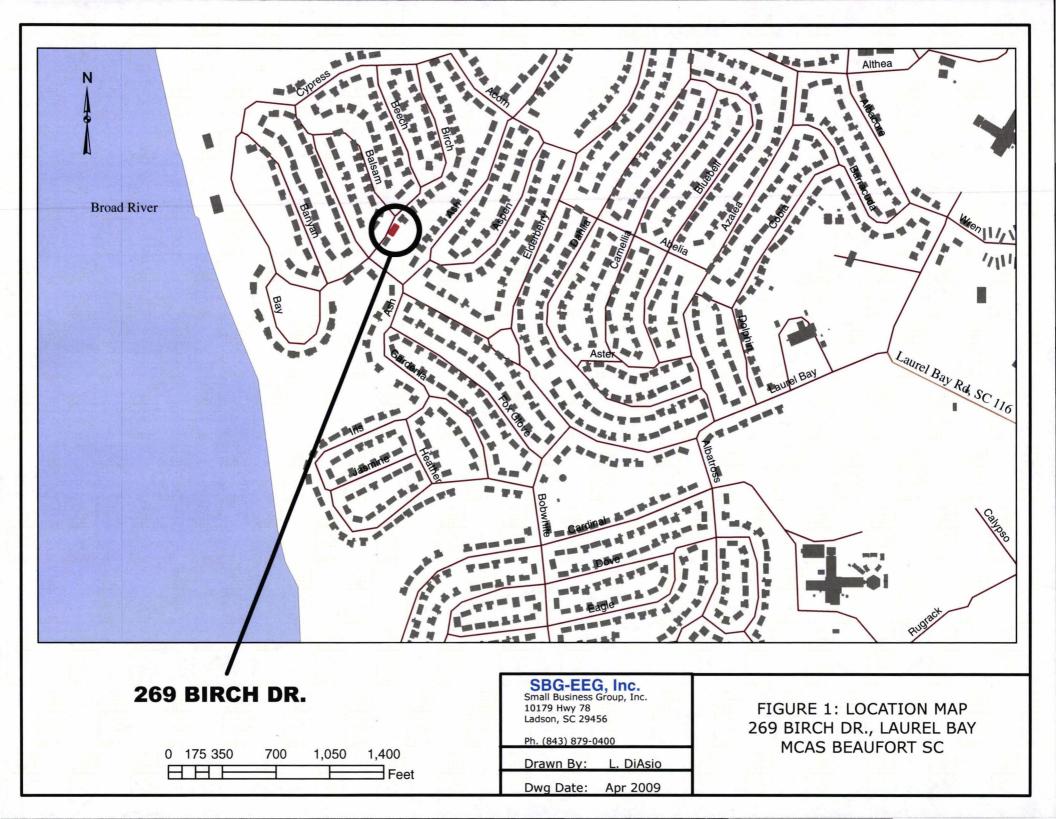
XII. RECEPTORS

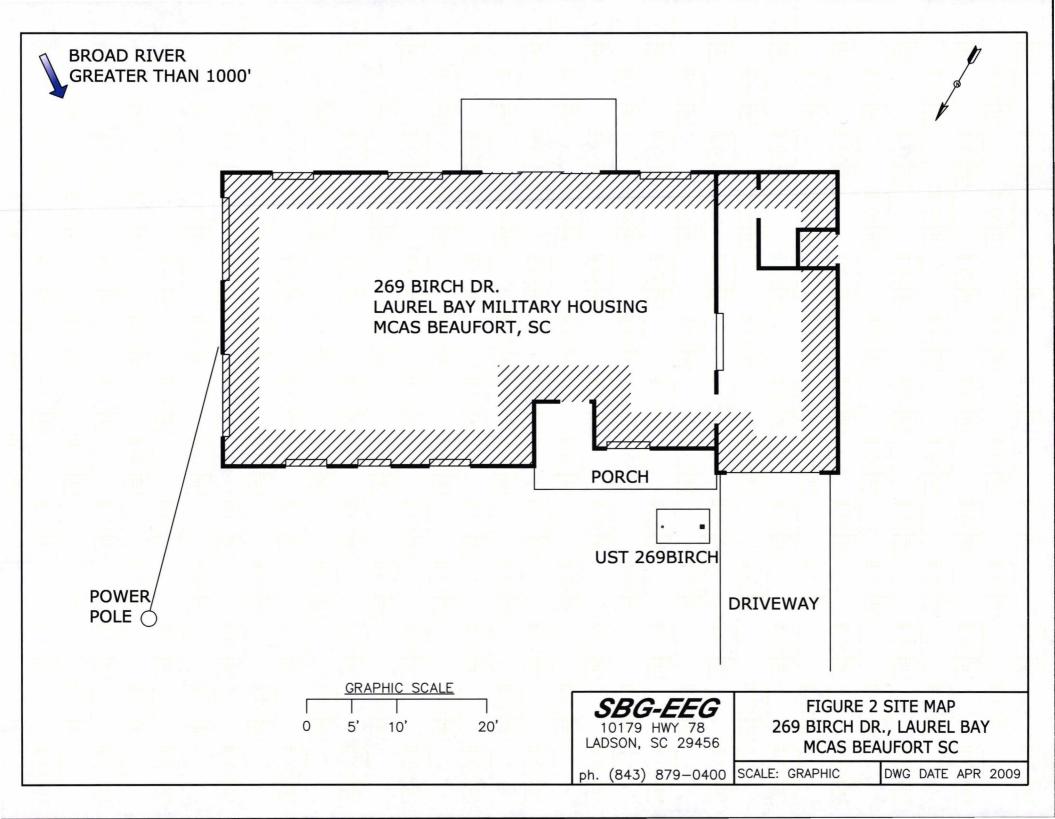
		Yes	No
A.	Are there any lakes, ponds, streams, or wetlands located within 1000 feet of the UST system?		Х
	If yes, indicate type of receptor, distance, and direction on site map.		
B.	Are there any public, private, or irrigation water supply wells within 1000 feet of the UST system?		х
	If yes, indicate type of well, distance, and direction on site map.		
C.	Are there any underground structures (e.g., basements) Located within 100 feet of the UST system?		Х
	If yes, indicate type of structure, distance, and direction on site map.		
D.	Are there any underground utilities (e.g., telephone, electricity, gas, water, sewer, storm drain) located within 100 feet of the UST system that could potentially come in contact with the contamination? *Sewer, water, electricity,	X*	
	cable, fiber optic If yes, indicate the type of utility, distance, and direction on the site map.		
E.	Has contaminated soil been identified at a depth less than 3 feet below land surface in an area that is not capped by asphalt or concrete?		Х
	If yes, indicate the area of contaminated soil on the site map.		

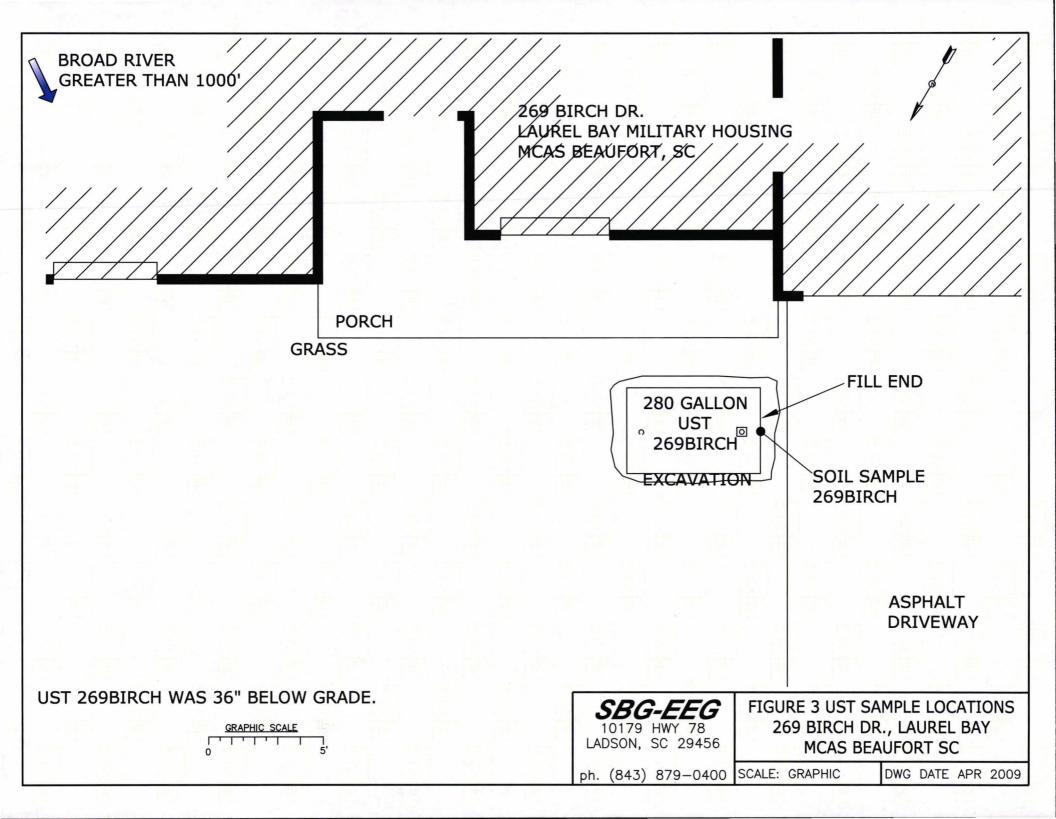
XIII. SITE MAP

You must supply a <u>scaled</u> site map. It should include all buildings, road names, utilities, tank and dispenser island locations, labeled sample locations, extent of excavation, and any other pertinent information.

(Attach Site Map Here)









Picture 1: 269 Birch Drive UST excavation site.



Picture 2: UST 269Birch after removal from the excavation.

XIV. SUMMARY OF ANALYSIS RESULTS

Enter the soil analytical data for each soil boring for all COC in the table below and on the following page.

СоС	269Birch
Benzene	ND
Toluene	ND
Ethylbenzene	0.0344 mg/kg
Xylenes	0.119 mg/kg
Naphthalene	0.702 mg/kg
Benzo (a) anthracene	ND
Benzo (b) fluoranthene	ND
Benzo (k) fluoranthene	ND ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
TPH (EPA 3550)	
СоС	
Benzene	
Toluene	
Ethylbenzene	
Xylenes	
Naphthalene	
Benzo (a) anthracene	
Benzo (b) fluoranthene	
Benzo (k) fluoranthene	
Chrysene	
Dibenz (a, h) anthracene	
TPH (EPA 3550)	

SUMMARY OF ANALYSIS RESULTS (cont'd)
Enter the ground water analytical data for each sample for all CoC in the table below. If free product is present, indicate the measured thickness to the nearest 0.01 feet.

CoC	RBSL	-	W-2	W -3	W -4
	(µg/l)	W-1	VV-2	W -3	VV -4
Free Product Thickness	None				
Benzene	5				
Toluene	1,000				
Ethylbenzene	700				
Xylenes	10,000				
Total BTEX	N/A				
MTBE	40				
Naphthalene	25				
Benzo (a) anthracene	10				
Benzo (b) flouranthene	10				
Benzo (k) flouranthene	10				
Chrysene	10				
Dibenz (a, h) anthracene	10				
EDB	.05				
1,2-DCA	5				
Lead	Site specific				

XV. ANALYTICAL RESULTS

You must submit the laboratory report and chain-of-custody form for the samples. These samples must be analyzed by a South Carolina certified laboratory.

(Attach Certified Analytical Results and Chain-of-Custody Here) (Please see Form #4)





April 17, 2009

4:54:25PM

Client:

EEG - Env. Enterprise Group (2449)

10179 Highway 78

Ladson, SC 29456

Attn:

Tom McElwee

Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Nbr: P/O Nbr:

[none] 0829

Date Received: 04

04/03/09

SAMPLE IDENTIFICATION

LAB NUMBER

COLLECTION DATE AND TIME

269	Birch
263	Beech-1
263	Beech-2

NSD0366-01 NSD0366-02 NSD0366-03

03/30/09 13:35 03/31/09 11:15 03/31/09 14:10

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have received this material in error, please notify us immediately at 615-726-0177.

Additional Laboratory Comments:

Tare weight label was not present on the VOC Methanol vial for sample NSD0366-01.

South Carolina Certification Number: 84009001

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.

Estimated uncertainty is available upon request.

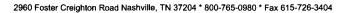
This report has been electronically signed.

Em & A Hage

Report Approved By:

Ken A. Haves

Senior Project Manager





Client EEG - Env. Enterprise Group (2449)

10179 Highway 78 Ladson, SC 29456

Tom McElwee

Attn

Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

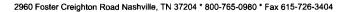
Project Number:

[none]

Received: 04/03/09 08:00

ANIAI	IVT	TA OI	REP	Орт
ANA		K AI	. K K P	IJKI

A1-4-				MDI	Dilution	Analysis	Mathad	D 4 1
Analyte	Result	Flag	Units	MRL	Factor	Date/Time	Method	Batch
Sample ID: NSD0366-01 (269 Bird	ch - Soil) Sam	pled: 03/3	0/09 13:35					
General Chemistry Parameters								
% Dry Solids	80.8		%	0.500	1	04/09/09 08:31	SW-846	9041148
Selected Volatile Organic Compounds	by EPA Method	l 8260B						
Benzene	ND		mg/kg dry	0.00188	1	04/08/09 16:54	SW846 8260B	9040586
Ethylbenzene	0.0344		mg/kg dry	0.00188	1	04/08/09 16:54	SW846 8260B	9040586
Naphthalene	0.702	STW	mg/kg dry	0.309	50	04/10/09 18:19	SW846 8260B	9041622
Toluene	ND		mg/kg dry	0.00188	1	04/08/09 16:54	SW846 8260B	9040586
Xylenes, total	0.119		mg/kg dry	0.00469	1	04/08/09 16:54	SW846 8260B	9040586
Surr: 1,2-Dichloroethane-d4 (41-150%)	99 %				-	04/08/09 16:54	SW846 8260B	904058
Surr: 1,2-Dichloroethane-d4 (41-150%)	100 %					04/10/09 18:19	SW846 8260B	904162
Surr: Dibromofluoromethane (55-139%)	100 %					04/08/09 16:54	SW846 8260B	904058
Surr: Dibromofluoromethane (55-139%)	97 %					04/10/09 18:19	SW846 8260B	904162
Surr: Toluene-d8 (57-148%)	105 %					04/08/09 16:54	SW846 8260B	904058
Surr: Toluene-d8 (57-148%)	95 %					04/10/09 18:19	SW846 8260B	904162
Surr: 4-Bromofluorobenzene (58-150%)	111 %					04/08/09 16:54	SW846 8260B	904058
Surr: 4-Bromofluorobenzene (58-150%)	86 %					04/10/09 18:19	SW846 8260B	904162
Polyaromatic Hydrocarbons by EPA 82	270D							
Acenaphthene	0.238		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Acenaphthylene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Anthracene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Benzo (a) anthracene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Benzo (a) pyrene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Benzo (b) fluoranthene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Benzo (g,h,i) perylene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Benzo (k) fluoranthene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Chrysene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Dibenz (a,h) anthracene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Fluoranthene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	904062
Fluorene	0.592		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	904062
Indeno (1,2,3-cd) pyrene	ND		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	904062
Naphthalene	0.372		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Phenanthrene	1.33		mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
	0.123			0.0823				
Pyrene			mg/kg dry	0.0823	1	04/05/09 15:19	SW846 8270D	9040621
Surr: Terphenyl-d14 (26-128%)	84 %					04/05/09 15:19	SW846 8270D	904062
Surr: 2-Fluorobiphenyl (19-109%)	68 %					04/05/09 15:19	SW846 8270D	904062
Surr: Nitrobenzene-d5 (22-104%)	53 %					04/05/09 15:19	SW846 8270D	904062





Client EEG - Env. Enterprise Group (2449)

10179 Highway 78 Ladson, SC 29456

Tom McElwee

Attn

Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

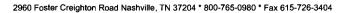
Project Number: [none]

Received:

04/03/09 08:00

ANA	IV	TTC A	T DI	EPORT	r

A T				MDI	Dilution	Analysis	Mathad	D 4 -
Analyte	Result	Flag	Units	MRL	Factor	Date/Time	Method	Batch
Sample ID: NSD0366-02 (263 Bee	ech-1 - Soil) San	npled: 03	/31/09 11:15					
General Chemistry Parameters	·							
% Dry Solids	76.8		%	0.500	1	04/09/09 08:31	SW-846	9041148
Selected Volatile Organic Compounds	by EPA Method	8260B						
Benzene	0.00484		mg/kg dry	0.00216	1	04/08/09 17:24	SW846 8260B	9040586
Ethylbenzene	ND		mg/kg dry	0.00216	1	04/08/09 17:24	SW846 8260B	9040586
Naphthalene	0.0676		mg/kg dry	0.00539	1	04/09/09 20:09	SW846 8260B	9041646
Toluene	ND		mg/kg dry	0.00216	1	04/08/09 17:24	SW846 8260B	9040586
Xylenes, total	ND		mg/kg dry	0.00539	1	04/08/09 17:24	SW846 8260B	9040586
Surr: 1,2-Dichloroethane-d4 (41-150%)	102 %		5 5 7			04/08/09 17:24	SW846 8260B	904058
Surr: 1,2-Dichloroethane-d4 (41-150%)	102 %					04/09/09 20:09	SW846 8260B	904164
Surr: Dibromofluoromethane (55-139%)	99 %					04/08/09 17:24	SW846 8260B	904058
Surr: Dibromofluoromethane (55-139%)	102 %					04/09/09 20:09	SW846 8260B	904164
Surr: Toluene-d8 (57-148%)	97 %					04/08/09 17:24	SW846 8260B	904058
Surr: Toluene-d8 (57-148%)	101 %					04/09/09 20:09	SW846 8260B	904164
Surr: 4-Bromofluorobenzene (58-150%)	95 %					04/08/09 17:24	SW846 8260B	904058
Surr: 4-Bromofluorobenzene (58-150%)	105 %					04/09/09 20:09	SW846 8260B	904164
Polyaromatic Hydrocarbons by EPA 8	270D							
Acenaphthene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Acenaphthylene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Anthracene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Benzo (a) anthracene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Benzo (a) pyrene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Benzo (b) fluoranthene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Benzo (g,h,i) perylene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Benzo (k) fluoranthene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Chrysene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Dibenz (a,h) anthracene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Fluoranthene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Fluorene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Indeno (1,2,3-cd) pyrene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
, , , , , , , , , , , , , , , , , , ,	ND ND			0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Naphthalene Phenanthrene	0.176		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D SW846 8270D	9040621
			mg/kg dry					
Pyrene	ND		mg/kg dry	0.0848	1	04/05/09 15:42	SW846 8270D	9040621
Surr: Terphenyl-d14 (26-128%)	77 %					04/05/09 15:42	SW846 8270D	904062
Surr: 2-Fluorobiphenyl (19-109%)	53 %					04/05/09 15:42	SW846 8270D	904062
Surr: Nitrobenzene-d5 (22-104%)	44 %					04/05/09 15:42	SW846 8270D	904062





Client EEG - Env. Enterprise Group (2449)

10179 Highway 78 Ladson, SC 29456

Tom McElwee

Attn

Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

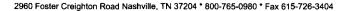
Project Number:

[none]

Received: 04/03/09 08:00

$\Delta N \Delta$	LVTIC	AT R	EPORT

	4	ANALYTICAL REPO	RT				
Analyte	Result Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NSD0366-03 (263 Bee	ech-2 - Soil) Sampled: 03	3/31/09 14:10					
General Chemistry Parameters							
% Dry Solids	74.6	%	0.500	1	04/09/09 08:31	SW-846	9041148
Selected Volatile Organic Compounds	by EPA Method 8260B						
Benzene	0.0121	mg/kg dry	0.00231	1	04/08/09 17:55	SW846 8260B	9040586
Ethylbenzene	0.127	mg/kg dry	0.00231	1	04/08/09 17:55	SW846 8260B	9040586
Naphthalene	4.08	mg/kg dry	0.280	50	04/10/09 18:50	SW846 8260B	9041622
Toluene	ND	mg/kg dry	0.00231	1	04/08/09 17:55	SW846 8260B	9040586
Xylenes, total	0.0666	mg/kg dry	0.00577	1	04/08/09 17:55	SW846 8260B	9040586
Surr: 1,2-Dichloroethane-d4 (41-150%)	97 %	2 2 7			04/08/09 17:55	SW846 8260B	9040586
Surr: 1,2-Dichloroethane-d4 (41-150%)	101 %				04/10/09 18:50	SW846 8260B	9041622
Surr: Dibromofluoromethane (55-139%)	98 %				04/08/09 17:55	SW846 8260B	9040586
Surr: Dibromofluoromethane (55-139%)	99 %				04/10/09 18:50	SW846 8260B	9041622
Surr: Toluene-d8 (57-148%)	109 %				04/08/09 17:55	SW846 8260B	9040586
Surr: Toluene-d8 (57-148%)	95 %				04/10/09 18:50	SW846 8260B	9041622
Surr: 4-Bromofluorobenzene (58-150%)	116 %				04/08/09 17:55	SW846 8260B	9040586
Surr: 4-Bromofluorobenzene (58-150%)	96 %				04/10/09 18:50	SW846 8260B	9041622
Polyaromatic Hydrocarbons by EPA 82	270D						
Acenaphthene	0.383	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Acenaphthylene	ND	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Anthracene	0.171	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Benzo (a) anthracene	ND	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Benzo (a) pyrene	ND	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Benzo (b) fluoranthene	ND	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Benzo (g,h,i) perylene	ND	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Benzo (k) fluoranthene	ND	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Chrysene	ND	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Dibenz (a,h) anthracene	ND	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Fluoranthene	0.212	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Fluorene	0,902	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Indeno (1,2,3-cd) pyrene	ND	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Naphthalene	1.61	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Phenanthrene	1.97	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Pyrene	0.305	mg/kg dry	0.0886	1	04/05/09 16:05	SW846 8270D	9040621
Surr: Terphenyl-d14 (26-128%)	89 %	mg/kg ui y	0.0000	1	04/05/09 16:05	SW846 8270D	9040621
Surr: 2-Fluorobiphenyl (19-109%)	69 %				04/05/09 16:05	SW846 8270D	9040621
Surr: Nitrobenzene-d5 (22-104%)	57 %				04/05/09 16:05	SW846 8270D	9040621
Sa	27.70				07/05/07 10.05	31, 010 02/0D	7070021





10179 Highway 78 Ladson, SC 29456

Tom McElwee

Attn

Work Order:

Received:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Number:

[none]

04/03/09 08:00

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
Polyaromatic Hydrocarbons by EPA 8	270D						
SW846 8270D	9040621	NSD0366-01	30.22	1.00	04/04/09 12:10	TEM	EPA 3550B
SW846 8270D	9040621	NSD0366-02	30.87	1.00	04/04/09 12:10	TEM	EPA 3550B
SW846 8270D	9040621	NSD0366-03	30.41	1.00	04/04/09 12:10	TEM	EPA 3550B
Selected Volatile Organic Compounds	by EPA Method	8260B					
SW846 8260B	9040586	NSD0366-01	6.60	5.00	03/30/09 13:35	JRL	EPA 5035
SW846 8260B	9041622	NSD0366-01RE1	5.00	5.00	03/30/09 13:35	JRL	EPA 5035
SW846 8260B	9040586	NSD0366-02	6.04	5.00	03/31/09 11:15	JRL	EPA 5035
SW846 8260B	9041646	NSD0366-02RE1	6.04	5.00	03/31/09 11:15	JRL	EPA 5035
SW846 8260B	9040586	NSD0366-03	5.81	5.00	03/31/09 14:10	JRL	EPA 5035
SW846 8260B	9041622	NSD0366-03RE1	5.98	5.00	03/31/09 14:10	JRL	EPA 5035



EEG - Env. Enterprise Group (2449) Client

10179 Highway 78

Tom McElwee

Attn

Ladson, SC 29456

Work Order:

NSD0366

Project Name:

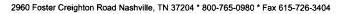
Laurel Bay Housing Project

Project Number: Received:

[none] 04/03/09 08:00

PROJECT QUALITY CONTROL DATA Blank

			·			
Analyte	Blank Value Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time	
Selected Volatile Organic Compo	unds by EPA Method 8260B					
9040586-BLK1						
Benzene	<0.000670	mg/kg wet	9040586	9040586-BLK1	04/08/09 16:23	
Ethylbenzene	<0.000670	mg/kg wet	9040586	9040586-BLK1	04/08/09 16:23	
Naphthalene	<0.00151	mg/kg wet	9040586	9040586-BLK1	04/08/09 16:23	
Toluene	0.00140	mg/kg wet	9040586	9040586-BLK1	04/08/09 16:23	
Xylenes, total	< 0.00172	mg/kg wet	9040586	9040586-BLK1	04/08/09 16:23	
Surrogate: 1,2-Dichloroethane-d4	102%		9040586	9040586-BLK1	04/08/09 16:23	
Surrogate: Dibromofluoromethane	103%		9040586	9040586-BLK1	04/08/09 16:23	
Surrogate: Toluene-d8	95%		9040586	9040586-BLK1	04/08/09 16:23	
Surrogate: 4-Bromofluorobenzene	105%		9040586	9040586-BLK1	04/08/09 16:23	
9041622-BLK1						
Benzene	<0.000670	mg/kg wet	9041622	9041622-BLK1	04/10/09 16:42	
Ethylbenzene	<0.000670	mg/kg wet	9041622	9041622-BLK1	04/10/09 16:42	
Naphthalene	<0.00151	mg/kg wet	9041622	9041622-BLK1	04/10/09 16:42	
Toluene	<0.000670	mg/kg wet	9041622	9041622-BLK1	04/10/09 16:42	
Xylenes, total	<0.00172	mg/kg wet	9041622	9041622-BLK1	04/10/09 16:42	
Surrogate: 1,2-Dichloroethane-d4	97%		9041622	9041622-BLK1	04/10/09 16:42	
Surrogate: Dibromofluoromethane	101%		9041622	9041622-BLK1	04/10/09 16:42	
Surrogate: Toluene-d8	94%		9041622	9041622-BLK1	04/10/09 16:42	
Surrogate: 4-Bromofluorobenzene	82%		9041622	9041622-BLK1	04/10/09 16:42	
9041646-BLK1						
Benzene	<0.000670	mg/kg wet	9041646	9041646-BLK1	04/09/09 19:08	
Ethylbenzene	<0.000670	mg/kg wet	9041646	9041646-BLK1	04/09/09 19:08	
Naphthalene	< 0.00151	mg/kg wet	9041646	9041646-BLK1	04/09/09 19:08	
Toluene	<0.000670	mg/kg wet	9041646	9041646-BLK1	04/09/09 19:08	
Xylenes, total	<0.00172	mg/kg wet	9041646	9041646-BLK1	04/09/09 19:08	
Surrogate: 1,2-Dichloroethane-d4	104%		9041646	9041646-BLK1	04/09/09 19:08	
Surrogate: Dibromofluoromethane	105%		9041646	9041646-BLK1	04/09/09 19:08	
Surrogate: Toluene-d8	93%		9041646	9041646-BLK1	04/09/09 19:08	
Surrogate: 4-Bromofluorobenzene	101%		9041646	9041646-BLK1	04/09/09 19:08	
Polyaromatic Hydrocarbons by E	EPA 8270D					
9040621-BLK1						
Acenaphthene	< 0.0310	mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47	
Acenaphthylene	< 0.0320	mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47	
Anthracene	< 0.0330	mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47	
Benzo (a) anthracene	< 0.0380	mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47	
Benzo (a) pyrene	<0.0290	mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47	
Benzo (b) fluoranthene	< 0.0320	mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47	
Benzo (g,h,i) perylene	< 0.0290	mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47	
Benzo (k) fluoranthene	<0.0290	mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47	





10179 Highway 78 Ladson, SC 29456

Tom McElwee

Attn

Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

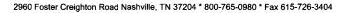
Project Number: [none]

Received:

04/03/09 08:00

PROJECT QUALITY CONTROL DATA Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Polyaromatic Hydrocarbons	by EPA 8270D					
9040621-BLK1						
Chrysene	< 0.0390		mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47
Dibenz (a,h) anthracene	< 0.0310		mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47
Fluoranthene	< 0.0340		mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47
Fluorene	< 0.0390		mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47
Indeno (1,2,3-cd) pyrene	< 0.0310		mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47
Naphthalene	< 0.0410		mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47
Phenanthrene	< 0.0340		mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47
Pyrene	< 0.0410		mg/kg wet	9040621	9040621-BLK1	04/05/09 13:47
Surrogate: Terphenyl-d14	86%			9040621	9040621-BLK1	04/05/09 13:47
Surrogate: 2-Fluorobiphenyl	68%			9040621	9040621-BLK1	04/05/09 13:47
Surrogate: Nitrobenzene-d5	49%			9040621	9040621-BLK1	04/05/09 13:47





10179 Highway 78 Ladson, SC 29456

Tom McElwee

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Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Number:

[none]

Received:

04/03/09 08:00

PROJECT QUALITY CONTROL DATA

Duplicate

Analyte		Orig. Val.	Duplicate	Q	Units	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
General Chemistry	y Parameters									
9041148-DUP1										
% Dry Solids		81.9	84.2		%	3	20	9041148	NSD0360-02	04/09/09 08:31



EEG - Env. Enterprise Group (2449) Client

> 10179 Highway 78 Ladson, SC 29456

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Work Order:

Project Name:

Received:

Laurel Bay Housing Project

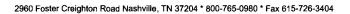
[none] Project Number:

04/03/09 08:00

NSD0366

PROJECT QUALITY CONTROL DATA **LCS**

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Selected Volatile Organic Compour	nds by EPA Method 82	60B						
9040586-BS1	•							
Benzene	50.0	46.6		ug/kg	93%	76 - 130	9040586	04/08/09 14:0
Ethylbenzene	50.0	47.2		ug/kg	94%	80 - 128	9040586	04/08/09 14:
Naphthalene	50.0	44.0		ug/kg	88%	63 - 144	9040586	04/08/09 14:
Toluene	50.0	46.7		ug/kg	93%	80 - 125	9040586	04/08/09 14:
Xylenes, total	150	143		ug/kg	95%	79 - 130	9040586	04/08/09 14:
Surrogate: 1,2-Dichloroethane-d4	50.0	49.0			98%	41 - 150	9040586	04/08/09 14:
Surrogate: Dibromofluoromethane	50.0	50.1			100%	55 - 139	9040586	04/08/09 14:
Surrogate: Toluene-d8	50.0	47.5			95%	57 - 148	9040586	04/08/09 14:
Surrogate: 4-Bromofluorobenzene	50.0	48.2			96%	58 - 150	9040586	04/08/09 14:0
9041622-BS1								
Benzene	50.0	42.0		ug/kg	84%	76 - 130	9041622	04/10/09 14:
Ethylbenzene	50.0	40.7		ug/kg	81%	80 - 128	9041622	04/10/09 14:
Naphthalene	50.0	35.8		ug/kg	72%	63 - 144	9041622	04/10/09 14:
Toluene	50.0	40.7		ug/kg	81%	80 - 125	9041622	04/10/09 14:
Xylenes, total	150	123		ug/kg	82%	79 - 130	9041622	04/10/09 14:
Surrogate: 1,2-Dichloroethane-d4	50.0	48.2			96%	41 - 150	9041622	04/10/09 14:
Surrogate: Dibromofluoromethane	50.0	51.3			103%	55 - 139	9041622	04/10/09 14:
Surrogate: Toluene-d8	50.0	48.3			97%	57 - 148	9041622	04/10/09 14:
Surrogate: 4-Bromofluorobenzene	50.0	42.3			85%	58 - 150	9041622	04/10/09 14:
9041646-BS1								
Benzene	50.0	55.6		ug/kg	111%	76 - 130	9041646	04/09/09 17:
Ethylbenzene	50.0	55.3		ug/kg	111%	80 - 128	9041646	04/09/09 17:
Naphthalene	50.0	50.5		ug/kg	101%	63 - 144	9041646	04/09/09 17:
Toluene	50,0	55.8		ug/kg	112%	80 - 125	9041646	04/09/09 17:
Xylenes, total	150	166		ug/kg	111%	79 - 130	9041646	04/09/09 17:
Surrogate: 1,2-Dichloroethane-d4	50.0	48.4			97%	41 - 150	9041646	04/09/09 17:
Surrogate: Dibromofluoromethane	50.0	51.4			103%	55 - 139	9041646	04/09/09 17:
Surrogate: Toluene-d8	50.0	47.6			95%	57 - 148	9041646	04/09/09 17:
Surrogate: 4-Bromofluorobenzene	50.0	49.2			98%	58 - 150	9041646	04/09/09 17:
Polyaromatic Hydrocarbons by EP	A 8270D							
9040621-BS1								
Acenaphthene	1.67	1.26		mg/kg wet	75%	52 - 106	9040621	04/05/09 14:
Acenaphthylene	1.67	1.14		mg/kg wet	68%	53 - 109	9040621	04/05/09 14:
Anthracene	1.67	1.46		mg/kg wet	87%	54 - 124	9040621	04/05/09 14:
Benzo (a) anthracene	1.67	1.31		mg/kg wet	78%	53 - 111	9040621	04/05/09 14:
Benzo (a) pyrene	1.67	1.33		mg/kg wet	80%	52 - 122	9040621	04/05/09 14:
Benzo (b) fluoranthene	1.67	1.42		mg/kg wet	85%	48 - 115	9040621	04/05/09 14:
Benzo (g,h,i) perylene	1.67	1.21		mg/kg wet	72%	46 - 114	9040621	04/05/09 14:
Benzo (k) fluoranthene	1.67	1.15		mg/kg wet	69%	41 - 121	9040621	04/05/09 14:





10179 Highway 78 Ladson, SC 29456

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Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Number: [none]

Received: 04/03/09 08:00

PROJECT QUALITY CONTROL DATA LCS - Cont.

Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
270D							
1.67	1.34		mg/kg wet	80%	49 - 113	9040621	04/05/09 14:10
1.67	1.25		mg/kg wet	75%	47 - 117	9040621	04/05/09 14:10
1.67	1.45		mg/kg wet	87%	52 - 113	9040621	04/05/09 14:10
1.67	1.23		mg/kg wet	74%	54 - 107	9040621	04/05/09 14:10
1.67	1.23		mg/kg wet	74%	47 - 115	9040621	04/05/09 14:10
1.67	0.973		mg/kg wet	58%	34 - 107	9040621	04/05/09 14:10
1.67	1.34		mg/kg wet	80%	53 - 108	9040621	04/05/09 14:10
1.67	1.40		mg/kg wet	84%	54 - 113	9040621	04/05/09 14:10
1.67	1.44			86%	26 - 128	9040621	04/05/09 14:10
1.67	1.28			77%	19 - 109	9040621	04/05/09 14:10
1.67	0.843			51%	22 - 104	9040621	04/05/09 14:10
	1.67 1.67 1.67 1.67 1.67 1.67 1.67 1.67	1.67 1.34 1.67 1.25 1.67 1.45 1.67 1.23 1.67 1.23 1.67 0.973 1.67 1.34 1.67 1.40 1.67 1.44 1.67 1.28	1.67 1.34 1.67 1.25 1.67 1.45 1.67 1.23 1.67 1.23 1.67 0.973 1.67 1.34 1.67 1.40 1.67 1.44 1.67 1.28	270D 1.67	270D 1.67	Known Val. Analyzed Val Q Units % Rec. Range 270D 1.67 1.34 mg/kg wet 80% 49 - 113 1.67 1.25 mg/kg wet 75% 47 - 117 1.67 1.45 mg/kg wet 87% 52 - 113 1.67 1.23 mg/kg wet 74% 54 - 107 1.67 1.23 mg/kg wet 74% 47 - 115 1.67 0.973 mg/kg wet 58% 34 - 107 1.67 1.34 mg/kg wet 80% 53 - 108 1.67 1.40 mg/kg wet 84% 54 - 113 1.67 1.44 86% 26 - 128 1.67 1.28 77% 19 - 109	Known Val. Analyzed Val Q Units % Rec. Range Batch 270D 1.67 1.34 mg/kg wet 80% 49 - 113 9040621 1.67 1.25 mg/kg wet 75% 47 - 117 9040621 1.67 1.45 mg/kg wet 87% 52 - 113 9040621 1.67 1.23 mg/kg wet 74% 54 - 107 9040621 1.67 1.23 mg/kg wet 74% 47 - 115 9040621 1.67 0.973 mg/kg wet 58% 34 - 107 9040621 1.67 1.34 mg/kg wet 80% 53 - 108 9040621 1.67 1.40 mg/kg wet 84% 54 - 113 9040621 1.67 1.44 86% 26 - 128 9040621 1.67 1.28 77% 19 - 109 9040621



10179 Highway 78 Ladson, SC 29456

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Work Order:

Received:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Number:

[none] 04/03/09 08:00

PROJECT QUALITY CONTROL DATA LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Selected Volatile Organic Comp	ounds by EPA	Method 820	60B									
9040586-BSD1	•											
Benzene		45.9		ug/kg	50.0	92%	76 - 130	2	43	9040586		04/08/09 13:37
Ethylbenzene		46.3		ug/kg	50.0	93%	80 - 128	2	48	9040586		04/08/09 13:37
Naphthalene		43.9		ug/kg	50.0	88%	63 - 144	0.3	50	9040586		04/08/09 13:37
Toluene		47.1		ug/kg	50.0	94%	80 - 125	0.9	44	9040586		04/08/09 13:37
Xylenes, total		139		ug/kg	150	93%	79 - 130	3	48	9040586		04/08/09 13:37
Surrogate: 1,2-Dichloroethane-d4		48.7		ug/kg	50.0	97%	41 - 150			9040586		04/08/09 13:37
Surrogate: Dibromofluoromethane		50.4		ug/kg	50.0	101%	55 - 139			9040586		04/08/09 13:37
Surrogate: Toluene-d8		48.9		ug/kg	50.0	98%	57 - 148			9040586		04/08/09 13:37
Surrogate: 4-Bromofluorobenzene		48.7		ug/kg	50.0	97%	58 - 150			9040586		04/08/09 13:37
9041622-BSD1												
Benzene		43.1		ug/kg	50.0	86%	76 - 130	3	43	9041622		04/10/09 15:01
Ethylbenzene		40.9		ug/kg	50.0	82%	80 - 128	0.5	48	9041622		04/10/09 15:01
Naphthalene		41.9		ug/kg	50.0	84%	63 - 144	16	50	9041622		04/10/09 15:01
Toluene		41.9		ug/kg	50.0	84%	80 - 125	3	44	9041622		04/10/09 15:01
Xylenes, total		123		ug/kg	150	82%	79 - 130	0.6	48	9041622		04/10/09 15:01
Surrogate: 1,2-Dichloroethane-d4		47.4		ug/kg	50.0	95%	41 - 150			9041622		04/10/09 15:01
Surrogate: Dibromofluoromethane		51.4		ug/kg	50.0	103%	55 - 139			9041622		04/10/09 15:01
Surrogate: Toluene-d8		47.6		ug/kg	50.0	95%	57 - 148			9041622		04/10/09 15:01
Surrogate: 4-Bromofluorobenzene		47.9		ug/kg	50.0	96%	58 - 150			9041622		04/10/09 15:01
9041646-BSD1												
Benzene		49.9		ug/kg	50.0	100%	76 - 130	11	43	9041646		04/09/09 18:06
Ethylbenzene		49.0		ug/kg	50.0	98%	80 - 128	12	48	9041646		04/09/09 18:06
Naphthalene		47.7		ug/kg	50.0	95%	63 - 144	6	50	9041646		04/09/09 18:06
Toluene		50.0		ug/kg	50.0	100%	80 - 125	11	44	9041646		04/09/09 18:06
Xylenes, total		149		ug/kg	150	99%	79 - 130	11	48	9041646		04/09/09 18:06
Surrogate: 1,2-Dichloroethane-d4		49.1		ug/kg	50.0	98%	41 - 150			9041646		04/09/09 18:06
Surrogate: Dibromofluoromethane		52.1		ug/kg	50.0	104%	55 - 139			9041646		04/09/09 18:06
Surrogate: Toluene-d8		47.7		ug/kg	50.0	95%	57 - 148			9041646		04/09/09 18:06
Surrogate: 4-Bromofluorobenzene		47.4		ug/kg	50.0	95%	58 - 150			9041646		04/09/09 18:06



10179 Highway 78 Ladson, SC 29456

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Work Order:

Received:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Number:

[none]

04/03/09 08:00

PROJECT QUALITY CONTROL DATA
Matrix Spike

			Matrix Spil	re					
Analyte	Orig. Val.	MS Val	Q Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Selected Volatile Organic Compo	unds by EPA Me	thod 8260B							
9040586-MS1 Benzene	ND	1.77	mg/kg wet	2.39	74%	33 - 146	9040586	NSD0306-07RE	04/08/09 22:31
Ethylbenzene	ND	1.75	mg/kg wet	2.39	73%	16 - 160	9040586	NSD0306-07RE	04/08/09 22:31
Naphthalene	0.207	2.11	mg/kg wet	2.39	80%	10 - 151	9040586	NSD0306-07RE	04/08/09 22:31
Toluene	ND	1.74	mg/kg wet	2.39	73%	30 - 145	9040586	NSD0306-07RE	04/08/09 22:31
Xylenes, totai	ND	5.46	mg/kg wet	7.17	76%	16 - 159	9040586	NSD0306-07RE	04/08/09 22:31
Surrogate: 1,2-Dichloroethane-d4		48.0	ug/kg	50.0	96%	41 - 150	9040586	NSD0306-07RE	04/08/09 22:31
Surrogate: Dibromofluoromethane		48.4	ug/kg	50.0	97%	55 - 139	9040586	NSD0306-07RE	04/08/09 22:31
Surrogate: Toluene-d8		48.5	ug/kg	50.0	97%	57 - 148	9040586	NSD0306-07RE	04/08/09 22:31
Surrogate: 4-Bromofluorobenzene		47.9	ug/kg	50.0	96%	58 - 150	9040586	NSD0306-07RE	04/08/09 22:31
9041622-MS1									
Benzene	ND	1.47	mg/kg wet	2.35	63%	33 - 146	9041622	NSD0306-11RE 2	04/10/09 22:55
Ethylbenzene	0.970	2.03	mg/kg wet	2.35	45%	16 - 160	9041622	NSD0306-11RE 2	04/10/09 22:55
Naphthalene	1.54	1.79	mg/kg wet	2.35	11%	10 - 151	9041622	NSD0306-11RE 2	04/10/09 22:55
Toluene	ND	1.36	mg/kg wet	2.35	58%	30 - 145	9041622	NSD0306-11RE 2	04/10/09 22:55
Xylenes, total	6.38	8.56	mg/kg wet	7.04	31%	16 - 159	9041622	NSD0306-11RE 2	04/10/09 22:55
Surrogate: 1,2-Dichloroethane-d4		45.3	ug/kg	50.0	91%	41 - 150	9041622	NSD0306-11RE 2	04/10/09 22:55
Surrogate: Dibromofluoromethane		48.8	ug/kg	50.0	98%	55 - 139	9041622	NSD0306-11RE 2	04/10/09 22:55
Surrogate: Toluene-d8		47.4	ug/kg	50.0	95%	57 - 148	9041622	NSD0306-11RE 2	04/10/09 22:55
Surrogate: 4-Bromofluorobenzene		43.0	ug/kg	50.0	86%	58 - 150	9041622	NSD0306-11RE 2	04/10/09 22:55
9041646-MS1									
Benzene	0.517	2.48	mg/kg wet	2.31	85%	33 - 146	9041646	NSD0306-09RE 2	04/10/09 02:17
Ethylbenzene	1.46	3.32	mg/kg wet	2.31	80%	16 - 160	9041646	NSD0306-09RE 2	04/10/09 02:17
Naphthalene	1.01	2.85	mg/kg wet	2.31	80%	10 - 151	9041646	NSD0306-09RE 2	04/10/09 02:17
Toluene	2.91	4.71	mg/kg wet	2.31	78%	30 - 145	9041646	NSD0306-09RE 2	04/10/09 02:17



10179 Highway 78 Ladson, SC 29456

Tom McElwee

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Work Order:

Received:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Number: [1

[none]

04/03/09 08:00

PROJECT QUALITY CONTROL DATA Matrix Spike - Cont.

			······································	Come					
Analyte	Orig. Val.	MS Val	Q Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Selected Volatile Organic Compo	unds by EPA Me	thod 8260B							
9041646-MS1	-								
Xylenes, total	7.04	12.6	mg/kg wet	6.94	81%	16 - 159	9041646	NSD0306-09RE 2	04/10/09 02:17
Surrogate: 1,2-Dichloroethane-d4		49.2	ug/kg	50.0	98%	41 - 150	9041646	NSD0306-09RE 2	04/10/09 02:17
Surrogate: Dibromofluoromethane		50.6	ug/kg	50.0	101%	55 - 139	9041646	NSD0306-09RE 2	04/10/09 02:17
Surrogate: Toluene-d8		47.5	ug/kg	50.0	95%	57 - 148	9041646	NSD0306-09RE 2	04/10/09 02:17
Surrogate: 4-Bromofluorobenzene		48.1	ug/kg	50.0	96%	58 - 150	9041646	NSD0306-09RE 2	04/10/09 02:17
Polyaromatic Hydrocarbons by E	CPA 8270D								
9040621-MS1									
Acenaphthene	ND	1.10	mg/kg wet	1.62	68%	28 - 117	9040621	NSD0405-07	04/05/09 14:33
Acenaphthylene	ND	1.01	mg/kg wet	1.62	62%	33 - 113	9040621	NSD0405-07	04/05/09 14:33
Anthracene	ND	1.24	mg/kg wet	1.62	77%	31 - 131	9040621	NSD0405-07	04/05/09 14:33
Benzo (a) anthracene	ND	1.10	mg/kg wet	1.62	68%	29 - 124	9040621	NSD0405-07	04/05/09 14:33
Benzo (a) pyrene	ND	1.14	mg/kg wet	1.62	70%	30 - 127	9040621	NSD0405-07	04/05/09 14:33
Benzo (b) fluoranthene	ND	1.14	mg/kg wet	1.62	70%	26 - 128	9040621	NSD0405-07	04/05/09 14:33
Benzo (g,h,i) perylene	ND	1.00	mg/kg wet	1.62	62%	21 - 122	9040621	NSD0405-07	04/05/09 14:33
Benzo (k) fluoranthene	ND	1.01	mg/kg wet	1.62	62%	20 - 130	9040621	NSD0405-07	04/05/09 14:33
Chrysene	ND	1.13	mg/kg wet	1.62	70%	30 - 119	9040621	NSD0405-07	04/05/09 14:33
Dibenz (a,h) anthracene	ND	1.03	mg/kg wet	1.62	64%	27 - 122	9040621	NSD0405-07	04/05/09 14:33
Fluoranthene	ND	1.23	mg/kg wet	1.62	76%	23 - 132	9040621	NSD0405-07	04/05/09 14:33
Fluorene	ND	1.07	mg/kg wet	1.62	66%	38 - 110	9040621	NSD0405-07	04/05/09 14:33
Indeno (1,2,3-cd) pyrene	ND	1.02	mg/kg wet	1.62	63%	24 - 122	9040621	NSD0405-07	04/05/09 14:33
Naphthalene	ND	0.855	mg/kg wet	1.62	53%	14 - 117	9040621	NSD0405-07	04/05/09 14:33
Phenanthrene	ND	1.16	mg/kg wet	1.62	72%	21 - 130	9040621	NSD0405-07	04/05/09 14:33
Pyrene	ND	1.23	mg/kg wet	1.62	76%	24 - 133	9040621	NSD0405-07	04/05/09 14:33
Surrogate: Terphenyl-d14		1.21	mg/kg wet	1.62	75%	26 - 128	9040621	NSD0405-07	04/05/09 14:33
Surrogate: 2-Fluorobiphenyl		1.07	mg/kg wet	1.62	66%	19 - 109	9040621	NSD0405-07	04/05/09 14:33
Surrogate: Nitrobenzene-d5		0.737	mg/kg wet	1.62	45%	22 - 104	9040621	NSD0405-07	04/05/09 14:33



EEG - Env. Enterprise Group (2449) Client

> 10179 Highway 78 Ladson, SC 29456

Tom McElwee

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Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Number: Received:

[none] 04/03/09 08:00

PROJECT QUALITY CONTROL DATA **Matrix Spike Dup**

Analyte	Orig. Val.	Duplicate Q	Units	Spike Conc	% Rec.	Target Range	RPD Lim	t Batch	Sample Duplicated	Analyzed Date/Time
Selected Volatile Organic Compo	unds by EPA	Method 8260B								
9040586-MSD1										
Benzene	ND	1.51	mg/kg wet	2.39	63%	33 - 146	16 43	9040586	NSD0306-07R E1	04/08/09 23:02
Ethylbenzene	ND	1.55	mg/kg wet	2.39	65%	16 - 160	12 48	9040586	NSD0306-07R E1	04/08/09 23:02
Naphthalene	0.207	1.76	mg/kg wet	2.39	65%	10 - 151	18 50	9040586	NSD0306-07R	04/08/09 23:02
Toluene	ND	1.50	mg/kg wet	2.39	63%	30 - 145	15 44	9040586	E1 NSD0306-07R E1	04/08/09 23:02
Xylenes, total	ND	4.85	mg/kg wet	7.17	68%	16 - 159	12 48	9040586	NSD0306-07R E1	04/08/09 23:02
Surrogate: 1,2-Dichloroethane-d4		47.9	ug/kg	50.0	96%	41 - 150		9040586	NSD0306-07R E1	04/08/09 23:02
Surrogate: Dibromofluoromethane		49.6	ug/kg	50.0	99%	55 - 139		9040586	NSD0306-07R	04/08/09 23:02
Surrogate: Toluene-d8		48.2	ug/kg	50.0	96%	57 - 148		9040586	E1 NSD0306-07R E1	04/08/09 23:02
Surrogate: 4-Bromofluorobenzene		49.7	ug/kg	50.0	99%	58 - 150		9040586	NSD0306-07R E1	04/08/09 23:02
9041622-MSD1										
Benzene	ND	1.52	mg/kg wet	2.35	65%	33 - 146	3 43	9041622	NSD0306-11R E2	04/10/09 23:25
Ethylbenzene	0.970	2.24	mg/kg wet	2.35	54%	16 - 160	10 48	9041622	NSD0306-11R E2	04/10/09 23:25
Naphthalene	1.54	2.05	mg/kg wet	2.35	22%	10 - 151	13 50	9041622	NSD0306-11R E2	04/10/09 23:25
Toluene	ND	1.43	mg/kg wet	2.35	61%	30 - 145	5 44	9041622	NSD0306-11R E2	04/10/09 23:25
Xylenes, total	6.38	9.40	mg/kg wet	7.04	43%	16 - 159	9 48	9041622	NSD0306-11R E2	04/10/09 23:25
Surrogate: 1,2-Dichloroethane-d4		46.3	ug/kg	50.0	93%	41 - 150		9041622	NSD0306-11R E2	04/10/09 23:25
Surrogate: Dibromofluoromethane		48.3	ug/kg	50.0	97%	55 - 139		9041622	NSD0306-11R E2	04/10/09 23:25
Surrogate: Toluene-d8		48.1	ug/kg	50.0	96%	57 - 148		9041622	NSD0306-11R E2	04/10/09 23:25
Surrogate: 4-Bromofluorobenzene		42.8	ug/kg	50.0	86%	58 - 150		9041622	NSD0306-11R E2	04/10/09 23:25
9041646-MSD1										
Benzene	0.517	2.00	mg/kg wet	2.31	64%	33 - 146	22 43	9041646	NSD0306-09R	04/10/09 02:47
Ethylbenzene	1.46	2.72	mg/kg wet	2.31	55%	16 - 160	20 48	9041646	E2 NSD0306-09R E2	04/10/09 02:47
Naphthalene	1.01	2.04	mg/kg wet	2.31	45%	10 - 151	33 50	9041646	NSD0306-09R E2	04/10/09 02:47
Toluene	2.91	4.02	mg/kg wet	2.31	48%	30 - 145	16 44	9041646	NSD0306-09R E2	04/10/09 02:47
Xylenes, total	7.04	10.5	mg/kg wet	6.94	50%	16 - 159	18 48	9041646	NSD0306-09R E2	04/10/09 02:47



10179 Highway 78 Ladson, SC 29456

Tom McElwee

Attn

Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Number:

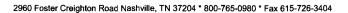
[none]

Received:

04/03/09 08:00

PROJECT QUALITY CONTROL DATA Matrix Spike Dup - Cont.

Analyte	Orig. Val.	Duplicate Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Selected Volatile Organic Comp	ounds by EPA	Method 8260B									
9041646-MSD1											
Surrogate: 1,2-Dichloroethane-d4		47.6	ug/kg	50.0	95%	41 - 150			9041646	NSD0306-09R E2	04/10/09 02:47
Surrogate: Dibromofluoromethane		49.2	ug/kg	50.0	98%	55 - 139			9041646	NSD0306-09R E2	04/10/09 02:47
Surrogate: Toluene-d8		47.1	ug/kg	50.0	94%	57 - 148			9041646	NSD0306-09R E2	04/10/09 02:47
Surrogate: 4-Bromofluorobenzene		42.0	ug/kg	50.0	84%	58 - 150			9041646	NSD0306-09R E2	04/10/09 02:47
Polyaromatic Hydrocarbons by	EPA 8270D										
9040621-MSD1											
Acenaphthene	ND	1.18	mg/kg wet	1.64	72%	28 - 117	7	33	9040621	NSD0405-07	04/05/09 14:56
Acenaphthylene	ND	1.05	mg/kg wet	1.64	64%	33 - 113	4	38	9040621	NSD0405-07	04/05/09 14:56
Anthracene	ND	1.29	mg/kg wet	1.64	79%	31 - 131	4	32	9040621	NSD0405-07	04/05/09 14:56
Benzo (a) anthracene	ND	1.16	mg/kg wet	1.64	71%	29 - 124	5	26	9040621	NSD0405-07	04/05/09 14:56
Benzo (a) pyrene	ND	1.20	mg/kg wet	1.64	73%	30 - 127	5	31	9040621	NSD0405-07	04/05/09 14:56
Benzo (b) fluoranthene	ND	1.14	mg/kg wet	1.64	69%	26 - 128	0.08	37	9040621	NSD0405-07	04/05/09 14:56
Benzo (g,h,i) perylene	ND	1.12	mg/kg wet	1.64	68%	21 - 122	11	28	9040621	NSD0405-07	04/05/09 14:56
Benzo (k) fluoranthene	ND	1.20	mg/kg wet	1.64	73%	20 - 130	18	35	9040621	NSD0405-07	04/05/09 14:56
Chrysene	ND	1.21	mg/kg wet	1.64	74%	30 - 119	7	31	9040621	NSD0405-07	04/05/09 14:56
Dibenz (a,h) anthracene	ND	1.10	mg/kg wet	1.64	67%	27 - 122	6	32	9040621	NSD0405-07	04/05/09 14:56
Fluoranthene	ND	1.30	mg/kg wet	1.64	79%	23 - 132	6	36	9040621	NSD0405-07	04/05/09 14:56
Fluorene	ND	1.15	mg/kg wet	1.64	70%	38 - 110	8	35	9040621	NSD0405-07	04/05/09 14:56
Indeno (1,2,3-cd) pyrene	ND	1.11	mg/kg wet	1.64	67%	24 - 122	8	28	9040621	NSD0405-07	04/05/09 14:56
Naphthalene	ND	0.864	mg/kg wet	1.64	53%	14 - 117	1	34	9040621	NSD0405-07	04/05/09 14:56
Phenanthrene	ND	1.22	mg/kg wet	1.64	74%	21 - 130	5	33	9040621	NSD0405-07	04/05/09 14:56
Pyrene	ND	1.27	mg/kg wet	1.64	77%	24 - 133	3	36	9040621	NSD0405-07	04/05/09 14:56
Surrogate: Terphenyl-d14		1.22	mg/kg wet	1.64	74%	26 - 128			9040621	NSD0405-07	04/05/09 14:56
Surrogate: 2-Fluorobiphenyl		1.09	mg/kg wet	1.64	66%	19 - 109			9040621	NSD0405-07	04/05/09 14:56
Surrogate: Nitrobenzene-d5		0.740	mg/kg wet	1.64	45%	22 - 104			9040621	NSD0405-07	04/05/09 14:56





10179 Highway 78 Ladson, SC 29456

Tom McElwee

Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Number: Received: [none] 04/03/09 08:00

CERTIFICATION SUMMARY

TestAmerica Nashville

Attn

Method	Matrix	AIHA	Nelac	South Carolina	
SW846 8260B	Soil	N/A	X	X	
SW846 8270D	Soil			X	
SW-846	Soil				



2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client EEG - Env. Enterprise Group (2449)

10179 Highway 78 Ladson, SC 29456

Tom McElwee

Work Order:

NSD0366

Project Name:

Laurel Bay Housing Project

Project Number:

[none]

Received:

04/03/09 08:00

DATA QUALIFIERS AND DEFINITIONS

STW

Attn

No tare weight present on sample vial. Result should be considered an estimated value.

ND

Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

NSD0366

04/17/09 23:59

TestAmeri Client Name/Account #:	EFS (IN)	Nashville 2960 Fost Nashville,	er Crei	ghto	n				ll Fre	ne: 6: se: 8: ax: 6:	00-70	65-09	080							metho	ds, is i	this wo	rk bein 3?	g condi	nalytica ucted fo	r	Yes	s	No
·	10179 Highway	78							_							-							•		Action'	-		;	_
City/State/Zip:																_		Site	State:	SC			2.110	00//10///	, , , , , , , , , , , , , , , , , , , ,	•	100		_ '''
•															-			٠٠	PO#:		5	٦٤	·						
Project Manager:		maii. mceiw	ee@ee	gine.n	iet		N.		84	17 -	£1	79	- K)4	01	-		TA 0											
Telephone Number:		5.1				ra	IX NO		<u>, , , , , , , , , , , , , , , , , , , </u>			''-				-						lousing							
Sampler Name: (Print)		المتحرر	<u>γω</u>													-		-			вау г	lousing	Projec	<u> </u>					
Sampler Signature:	1702	<i></i>					_	_			=	_	_	<u> </u>	4 1 2			Pro	ject #:	=	==					===			
			-	_	Т		- 19			vative	<u> </u>	7	_	<u>_^</u>	Aatrb	\Box	\neg	- 18		Γ	Υ	T A	nalyze	For:		,	Τ	Τ	╁
Sample ID/Description 269 Biach 263 Beech-1 263 Beech-2	3/30/09 3/31/09 3/31/09	7115 7115	S ₁ S ₁ S ₂ No. of Containers Shipped	X X	Composite	Field Filtered	ice ice		NaOH (Orange Label)	H ₂ SO ₄ Plastic (Yellow Label)	N & None (Black Label)	1 2 -	Groundwater	Wastewater	Crining vares	y X	Other (specify):	(4) w BTEX + Napth - 82606	2 2 PAH - 8270C										RUSH TAT (Pre-Schedule
			1					1	Н	\Box	1				1	1	П	- 11			<u> </u>		1	1	1	 	<u> </u>	<u> </u>	十
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Special instructions:			- 	<u></u>			Meth	od of	Ship	pmen	ıt:			\		FE	DEX	(Labo	Temp		Upon	Receip		5	2.4	٥٥	- - Y
Relinquished by:	Date	_	Tir	ne	Rece	ived b	y:								Date			Time	•	1				·					
3601	1/2/0	9	110	M)	1	F	l =	X																					
Relinquished by:	Date		Tir	me	Rece	ived b	y Tes	4me	Sa:	_				41	Date		3	Fime S · C											

ATTACHMENT A

UST Certificate of Disposal

CONTRACTOR

Small Business Group, Inc. 10179 Highway 78 Ladson, SC 29456

TEL (843) 879-0403 FAX (843) 879-0401

TANK ID & LOCATION

UST 269Birch, 269 Birch Dr., Laurel Bay Housing Area, MCAS Beaufort, S.C.

DISPOSAL LOCATION

Coastal Auto Salvage Co., Inc. 130 Laurel Bay Road Beaufort, S.C. 29906

TYPE OF TANK	SIZE (GAL)
Steel	280

CLEANING/DISPOSAL METHOD

The tank and piping were unearthed, cut open, cleaned with a pressure washer, cut into sections, and recycled.

DISPOSAL CERTIFICATION

I certify that the above tank, piping and equipment has been properly cleaned and disposed of.

 $\frac{1}{\sqrt{2}} \left(\frac{1}{\sqrt{2}} \right) = \frac{1}{\sqrt{2}} \left(\frac{1}{\sqrt{2}} \right) = \frac{1}$

Appendix C Laboratory Analytical Report - Groundwater



Volatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants

Description: BEALB269TW01WG20130718

Laboratory ID: OG18009-009

Matrix: Aqueous

Date Sampled: 07/18/2013 0955 Date Received: 07/19/2013

Run Prep Method Analytical Method Dilution Analysis Date Analyst Prep Date Batch 5030B 8260B 07/26/2013 1644 JAC 25956

Parameter	CAS Number	Analytical Method	Result Q	LOQ	LOD	DL Units Run
Benzene	71-43-2	8260B	ND	0.50	0.25	0.027 ug/L 1
Ethylbenzene	100-41-4	8260B	ND	0.50	0.25	0.17 ug/L 1
Naphthalene	91-20-3	8260B	2.5	0.50	0.25	0.12 ug/L 1
Toluene	108-88-3	8260B	ND	0.50	0.25	0.17 ug/L 1
Xylenes (total)	1330-20-7	8260B	ND	0.50	0.25	0.17 ug/L 1
Surrogate	Run 1 Accepta Q % Recovery Limi					

Surrogate	Q	% Recovery	Limits	
1,2-Dichloroethane-d4		97	70-120	
Toluene-d8		106	85-120	
Bromofluorobenzene		97	75-120	
Dibromofluoromethane		98	85-115	

PQL = Practical quantitation limit ND = Not detected at or above the MDL B = Detected in the method blank $J = Estimated result < PQL and >_MDL$

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

E = Quantitation of compound exceeded the calibration range P = The RPD between two GC columns exceeds 40%

H = Out of holding time N = Recovery is out of criteria

Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Semivolatile Organic Compounds by GC/MS

Client: AECOM - Resolution Consultants

Description: BEALB269TW01WG20130718

Laboratory ID: OG18009-009

Date Sampled: 07/18/2013 0955

Matrix: Aqueous

Date Received: 07/19/2013

Run Prep Method Analytical Method Dilution Analysis Date Analyst Prep Date Batch 3520C 8270D 07/22/2013 1501 JRG 07/19/2013 1544 25460

Parameter	CAS Number	Analytical Method	Result Q	LOQ	LOD	DL Units R
Benzo(a)anthracene	56-55-3	8270D	ND	0.23	0.12	0.093 ug/L
Benzo(b)fluoranthene	205-99-2	8270D	ND	0.23	0.12	0.099 ug/L
Benzo(k)fluoranthene	207-08-9	8270D	ND	0.23	0.12	0.10 ug/L
Chrysene	218-01-9	8270D	ND	0.23	0.12	0.061 ug/L
Dibenzo(a,h)anthracene	53-70-3	8270D	ND	0.23	0.12	0.066 ug/L
Surrogate	Run 1 Accept					

Surrogate	Q	% Recovery	Limits
2-Fluorobiphenyl		61	50-110
Nitrobenzene-d5		56	40-110
Terphenyl-d14		55	50-135

PQL = Practical quantitation limit ND = Not detected at or above the MDL B = Detected in the method blank $J = Estimated result < PQL and >_MDL$

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

E = Quantitation of compound exceeded the calibration range P = The RPD between two GC columns exceeds 40%

H = Out of holding time N = Recovery is out of criteria

Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Appendix D Regulatory Correspondence





C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

July 22, 2009

Commanding Officer

ATTN: S-4 NREAO (Craig Ehde)

MCAS

PO Box 55001

Beaufort, SC 29904-5001

Re:

MCAS - Laurel Bay Housing - 269 Birch St.

Site ID # 04227

UST Closure Reports received June 29, 2009

Beaufort County

Dear Mr. Ehde:

The purpose of this letter is to verify a release of fuel oil at the referenced residence. According to information received by the Department, the source of the release is from past onsite use of fuel oil USTs. To date, initial activities by the facility have included tank removal and soil sampling. Based on the information contained in the closure report, a potential violation of the South Carolina Pollution Control Act has occurred in that there has been an unauthorized release of petroleum to the environment.

Additional assessment activities are required for this site. Specifically the Department requests that a groundwater sample be collected from this site. Please note, the Department approved a groundwater-sampling proposal for Laurel Bay submitted by MCAS under separate cover dated 16 June 2008.

Should you have any questions, please contact me at 803-896-4179 (office phone), 803-896-6245 (fax) or cookejt@dhec.sc.gov.

Sincerely,

Ján T. Cooke, Hydrogeologist AST Petroleum Restoration

& Site Environmental Investigations Section

Land Revitalization Division

Bureau of Land and Waste Management SC Dept. of Health & Environmental Control

cc: Region 8 District EQC

Tri-Command Communities; Attn: Mr. Robert Bible; 600 Laurel Bay Road Beaufort, SC

29906

Technical File



Catherine E. Heigel, Director Promoting and protecting the health of the public and the environment

Division of Waste Management Bureau of Land and Waste Management

August 6, 2015

Commanding Officer
Attention: NREAO Mr. William A. Drawdy
United State Marine Corps Air Station
Post Office Box 55001
Beaufort, SC 29904-5001

RE: Approval Response to Comments and Concurrence with Final Initial Groundwater Investigation Report-July 2013

Laurel Bay Military Housing Area Multiple Properties

Dated June 2015

Dear Mr. Drawdy,

The South Carolina Department of Health and Environmental Control (the Department) received groundwater data in the above referenced Groundwater Investigation Report for the addresses attached. The regulatory authority for the investigation and cleanup of releases from these tank systems is the South Carolina Pollution Control Act (S.C. Code Ann. §48-1-10 et seq., as amended).

Per the Department's request, groundwater samples were collected from the attached referenced addresses. The Department reviewed the groundwater data and previous investigations and it agrees with the conclusions and recommendations included in the document. To further assess the impact to groundwater, permanent wells should be installed at the 10 stated addresses. For the remaining 25 addresses, there is no indication of contamination on the property and therefore no further investigation is required at this time.

Please note that the Department's decision is based on information provided by the Marine Corps Air Station (MCAS) to date. Any information found to be contradictory to this decision may require additional action. Furthermore, the Department retains the right to request further investigation if deemed necessary.

If you have any questions, please contact me at petruslb@dhec.sc.gov or 803-898-0294.

Sincerely,

Laurel Petrus

FURX

RCRA Federal Facilities Section

Attachment: Specific Property Recommendations

Cc: Russell Berry, EQC Region 8 (via email)

Shawn Dolan, Resolution Consultants (via email)
Bryan Beck, NAVFAC MIDATLANTIC (via email)

Craig Ehde (via email)

Attachment to: Petrus to Drawdy

Subject: Draft Final Initial Groundwater Investigation Report-July 2013

Specifice Property Recommendations Dated August 6, 2015

Draft Final Initial Groundwater Investigation Report for (35 addresses/38 tanks)

Permanent Monitor	ring Well Investigation recommendation (10 addresses/11 tanks)
119 Banyan	156 Laurel Bay
128 Banyan	1033 Foxglove
132 Banyan	1055 Gardenia
135 Birch	1059 Gardenia
148 Laurel Bay	1168 Jasmine
	her Action recommendation (25 addresses/27 tanks):
115 Banyan	386 Acorn
116 Banyan	395 Acorn
120 Banyan	399 Acorn
124 Banyan	1021 Foxglove
125 Banyan	1027 Foxglove
136 Birch	1030 Foxglove
140 Laurel Bay	1032 Foxglove
144 Laurel Bay	1053 Gardenia
152 Laurel Bay	1058 Gardenia
160 Cypress	1061 Gardenia
263 Beech	1166 Jasmine
203 Deceli	
269 Birch	1169 Jasmine